Chemical Research Development and Engineering Center, Aberdeen Proving Ground, MD 21010. W.G. MATTOX. *Greenfalk Consultants, Box 29403, Columbus, OH 43229.* T.L. MAECHTLE. *3410 East Columbia, Meridian, ID 83642*

Long-term research in Greenland has yielded 18 years of incidental sightings and 2 years of surveys and observations of gyrfalcons (*Falco rusticolus*) around Sondrestromfjord, Greenland. Gyrfalcons nest on cliffs along fjords and near rivers and lakes throughout our 2590 sq. km study area. Nestlings are present mid-June to July. In 1990, we marked one adult female gyrfalcon with a 65 g radio-transmitter to obtain location estimates via the ARGOS polar orbiting satellite system. The unit transmitted 8 hours/day every two days. We obtained 145 locations during 5 weeks of the nestling and fledgling stage of breeding. We collected 1–9 locations/day, with a mean of 4/day. We calculated home range estimates based on the Minimum Convex Polygon (MCP) and Harmonic Mean (HM methods and tested subsets of the data based on location quality and number of transmission hours per day. Home range estimated by MCP using higher quality locations was approximately 589 sq. km. Home range estimates were larger when lower-quality locations were included in the estimates. Estimates based on data collected for 4 hours/day were similar to those for 8 hours/day. In the future, it might be possible to extend battery life of the transmitters by reducing the number of transmission hours/day. A longer-lived transmitter could provide information on movements and home ranges throughout the year.

USE OF SATELLITE TELEMETRY IN MONITORING BALD EAGLE MOVEMENTS

KRALOVEC, M.L. *Glacier Bay National Park and Preserve, Gustavus, AK 99826.* M.R. FULLER. *Department of the Interior, Bureau of Land Management, Washington, DC 20240.* P.F. SCHEMPF. *Department of the Interior, U.S. Fish and Wildlife Service, Juneau, AK 99802.* M.R. VAUGHAN. *U.S. Fish and Wildlife Service, Virginia Cooperative Fish and Wildlife Research Unit, Virginia Polytechnic Institute and State University, Blacksburg, VA 24060*

Collecting data on broad-scale movements through the use of conventional radiotelemetry can be limited by inaccessible terrain, large daily movements of the marked animal, and environmental factors. However, a bird-borne satellite transmitter can circumvent these problems by allowing the researcher to reliably obtain frequent locations from a distant position. As part of a research study on bald eagle movements in Glacier Bay National Park and Preserve, we attempted to demonstrate the practical application of a bird-borne satellite transmitter in a field situation. In late summer 1991, three adult bald eagles and three nestling eagles (9–10 weeks) were fitted with satellite transmitters. To verify satellite locations, each adult was also fitted with a VHF transmitter and locations were confirmed using ground and aerial searches. All three immature eagles left the natal territory within 3–6 weeks after fledging. Each immature initially moved northeast and then traveled in a southeasterly direction where they were last located 384.4, 109.2, and 17.4 km southeast of their natal territories. Two of the three satellite marked adults traveled 95 km northeast to the Chilkat River for 6 weeks and then returned to their nest territories by 27 January 1992. The third adult remained within its nest territory. While in the study area, all three adult eagles were visually located (3–4 days/week) within a 5 km radius of each satellite location point. Satellite transmitters provided 4–5 locations per day for 229 days. As confirmed by conventional telemetry, the PTTs were effective in monitoring the broad-scale movements of these adult eagles.

OWLS OF OLD FORESTS OF THE WORLD

MARCOT, B.G. *USDA Forest Service, PNW Research Station, Spotted Owl RD&A Program, 333 SW First Ave., P.O. Box 3890, Portland, OR 97208*

A review of literature on habitat associations of owls of the world revealed that approximately 84 species of owls among 18 genera are known or suspected to be associated with old forests. Old forest is defined as old-growth or undisturbed forests, typically with dense canopies. The 84 owl species include 72 tropical and 12 temperate forms Specific habitat associations have been studied for only 12 species (7 tropical and 5 temperate), whereas 73 species (65 tropical and 8 temperate) remain mostly unstudied. Some 25 species (35% of all known or suspected old-forest-associated owls in the tropics) are entirely or mostly restricted to tropical islands. Threats to old-forest-associated owls include alteration of habitat, use of pesticides, loss of riparian gallery forests, and loss of cavity nests. Conservation of old-forest-associated owls should include 1) inventories and studies of habitat associations, particularly in poorly studied tropical and insular environments; 2) protection of specific, existing temperate, and tropical old forest tracts; and 3) studies to determine if reforestation and vegetation manipulation can restore or maintain habitat conditions.

BARN OWL REPRODUCTION AND ITS CONSTRAINTS NEAR THE LIMIT OF THE SPECIES' DISTRIBUTION

MARTI, C.D. *Department of Zoology, Weber State University, Ogden, UT 84408-2505*

I studied reproduction of the barn owl (*Tyto alba*) in irrigated farmlands of northern Utah over 16 years. Three hundred and ninety-one nesting attempts, all in man-made structures, were documented. Most barn owls began nesting at one year of age and produced one brood per year. Rarely, second broods were produced or failed first clutches were replaced. Average size of complete first clutches